Simulation Based Acquisition in Logistics and Supportability Processes

PHANTOM WORKS

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Advanced Support Concepts

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Overview

- Vision and Goals of SBA
- Applications
- Logistics and Support Applications
- Future

Vision and Goals

Vision

"An acquisition process in which DoD and industry are enabled by robust, collaborative use of simulation technology that is integrated across acquisition phases and programs"

DoD Executive Council for Modeling and Simulation
Dec, 1997

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Vision and Goals

Goals

- **Substantially reduce the time, resources, and risk associated with the entire acquisition process**
- **Increase the quality, military worth, and supportability of fielded systems while reducing total ownership costs throughout the life cycle**
- **Enable integrated product and process development across the entire acquisition life cycle**

DoD Executive Council
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Vision and Goals

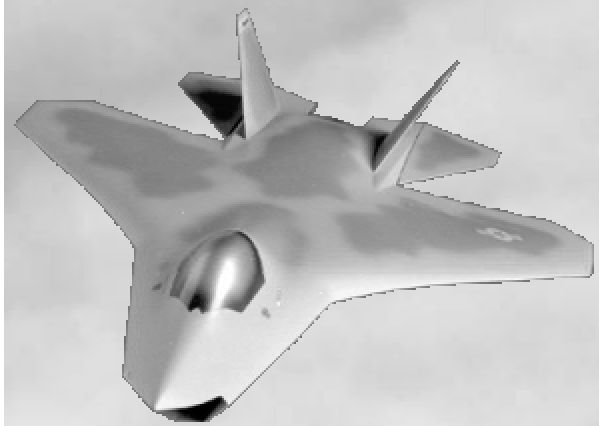
Key Issues

- **Dramatic improvement in acquisition**
- **Optimize cost and performance**
- **Reduce risk**
- **Reduce acquisition cycle time and complexity**
- **Lower ownership costs**
- **Collaborative environments - software re-use**

Applications

Outside Logistics Sphere

- **Direct application in aircraft simulators and modeling**
  - **•High fidelity simulators using same flight control and weapons performance parameters**
  - **•Capability for collaborative environments**
  - **•Software development time significantly reduced since control laws and software used in simulator forms basis for OFP**



TRANSITION

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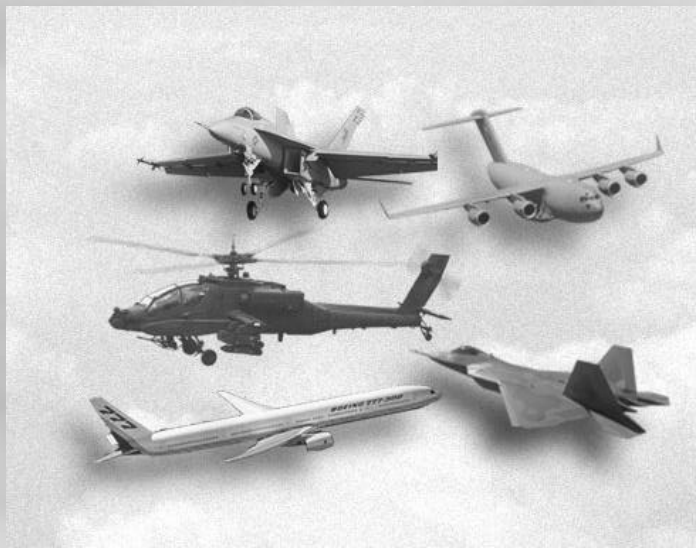
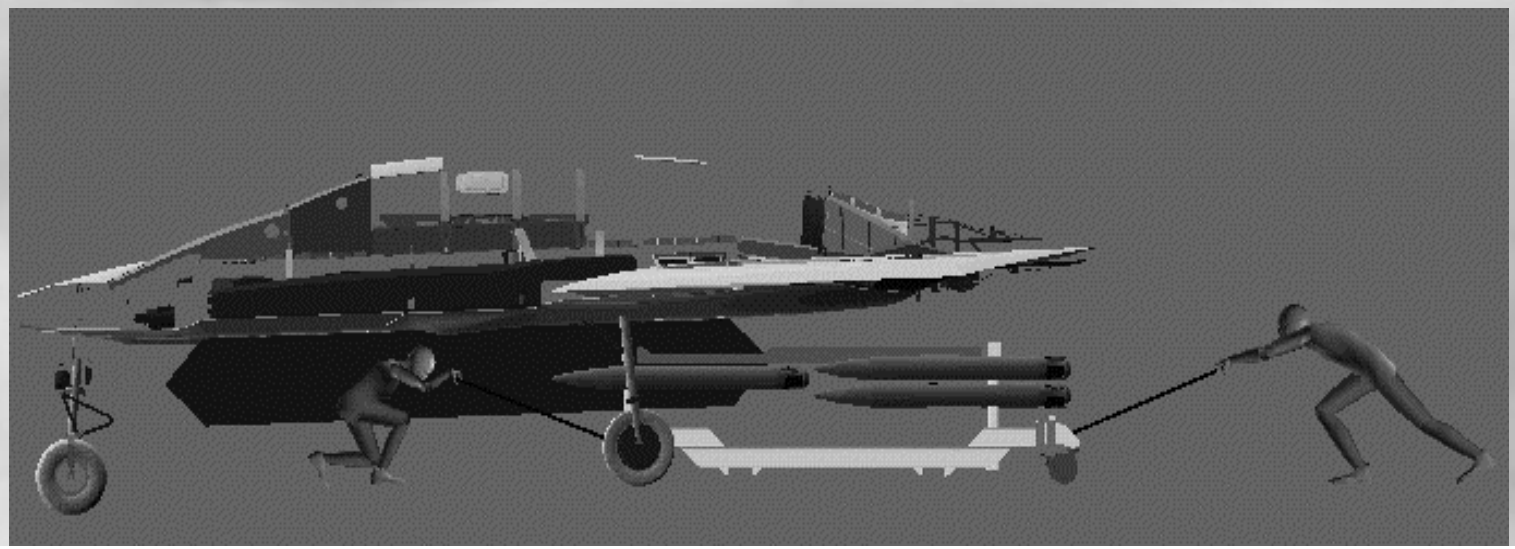
Logistics and Support Applications

- **Issue not as simple for Logistics**
  - **Technical approach to acquisition has been primarily in modeling**
  - **Most logistics processes don't lend to simulators (cockpit)**
  - **Support processes tend to be diverse**
    - **Supply Chain Management**
    - **Technicians (Maintenance)**
    - **Systems (Tech data, MIS, etc)**



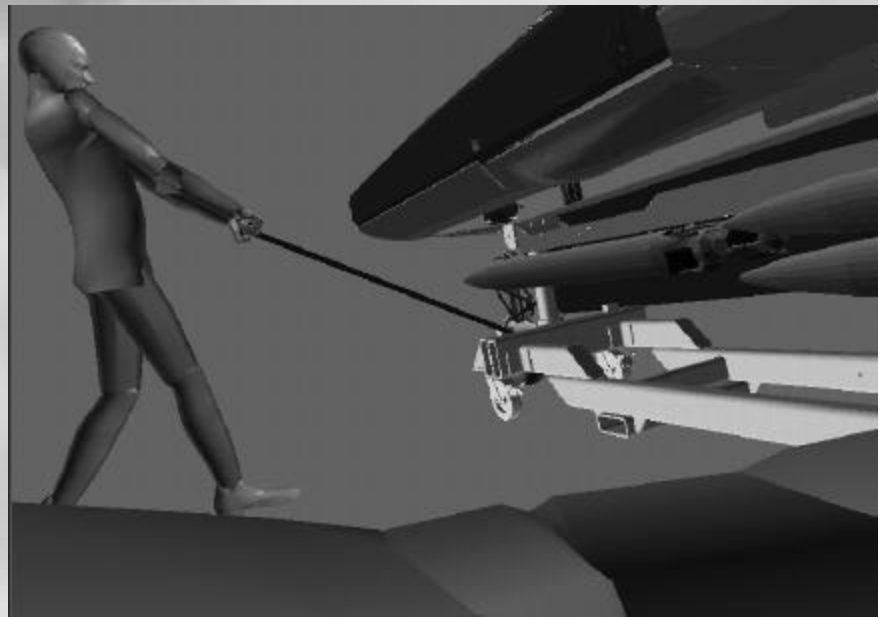
Logistics and Support Applications

- However, application of SBA techniques are viable for some logistics operations
  - Task level operations lend themselves to use of three dimensional modeling and virtual reality
  - Digital design data fromCAD/CATIA can be used to characterise shape and dimensions of equipment and components



Logistics and Support Applications

- **Breakthroughs in technology have aided in application**
  - **Addition of either technician in virtual reality or varible size mannequins (male and female, 5% to 95%) allows human interaction with modeling environment**



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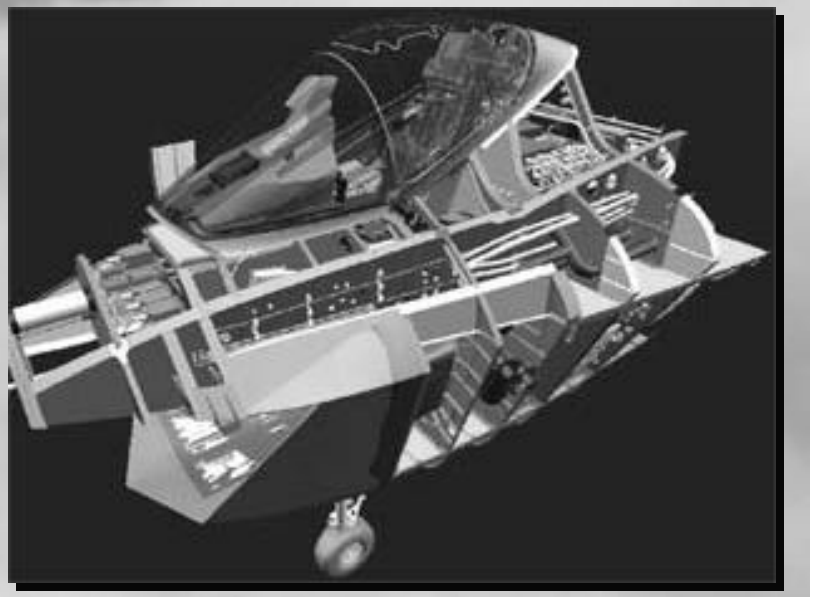
Logistics and Support Applications

- 3D solid modeling also allows investigation of repair procedures
  - Refine tech data task sequencing and component interference issues
  - Resolve issues in early design phase



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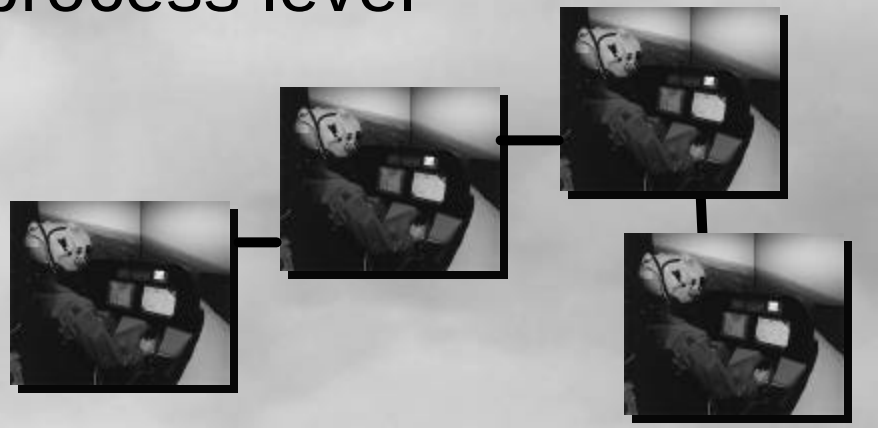
Logistics and Support Applications

- **Process is successful at the task level, but applying the approach in an entire logistics process is still in the infant stages**
  - Apply distributed simulations against a model to define new processes and techniques for weapons employment
  - Models and tools at the process level lack fidelity and sophistication at the process level



Future

- **Continue the application of SBA techniques but at the process level….and potentially campaign or theater level**
  - Allow logisticians to interact and define new support processes and techniques in battlefield scenarios

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Summary

- Applicationof SBA at the logistics task level is a success and growing
- Continue to grow process to higher levels
  - New constructive logistics models using interactive and visual technology to allow logistics process change


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